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10/556,482

12/14/2006

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EXAMINER

SUAREZ, FELIX E

ART UNIT

PAPER NUMBER

2857

NOTIFICATION DATE

DELIVERY MODE

05/26/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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|                              |                                      |                                    |  |
|------------------------------|--------------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/556,482 | <b>Applicant(s)</b><br>AJAY ET AL. |  |
|                              | <b>Examiner</b><br>FELIX SUAREZ      | <b>Art Unit</b><br>2857            |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-10,12-17,20-29,32,34-39,41-43 and 47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4,6-10,12,14-17 and 21-23 is/are allowed.
- 6) ☒ Claim(s) 13,20,24-29,32,34-39,41-43 and 47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 September 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/05/2011, 05/06/2011</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13, 20, 24-29, 32, 34-39, 41-43 and 47, are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

1. Claims 13, 20, 24-26, 28, 34-39, and 41-43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to independent claims, appears to be an apparatus and the body of the claim appears to be an apparatus claiming a method at the same time. Therefore the claim has a mixed process and apparatus attributes. See MPEP-2173.05(p).

1.1 For example with respect to claim 13 (or claim 20 or claim 28);

If claim 13 is independent claim, claim 13 is an apparatus claiming a method at the same claim. The Examiner suggests instead “the method of claim 1”, insert, to include all the steps of the claim 1 which are going to be performed by the apparatus of the claim 13.

If claim 13 is depending claim, claim 13 depending from claim 1, the Examiner suggests instead “the method of claim 1”, move the phrase to the

preamble of the claim 13 and recite --The method of claim 1, further comprising an apparatus ...-- or a processor.

1.2. For example with respect to claim 24;

Claim 24 appears to be independent claim, claim 24 is an apparatus claiming a method at the same claim. The Examiner suggests instead “the method of claim 21”, insert, to include all the steps of the claim 21 or include all the sum of steps of claim 21 + steps of claim 1, because 21 is depending from claim 1, steps which are going to be performed by the apparatus of the claim 24.

1.3 For example with respect to claim 34;

Claim 34 appears to be independent claim, claim 24 is an apparatus or an aspirated smoke detector, and the last element is an ultrasonic flow sensor, which is going to perform all the steps of the method of claim 27, the Examiner suggests that; if the ultrasonic flow sensor, is going to perform all the steps of the method of claim 27, include all the steps instead the method of claim 27.

1.4 For example with respect to claims 41-43;

Claims 41-43 appears to be independent claims, independent claim is an apparatus or a non-transitory computer readable medium, the Examiner suggests instead of “according to claim 1 (or 27 or 29), include all the steps of the method of the independent claim, or if they are dependent claims the preamble may be recite –The method of claim 1, further comprising a non-transitory computer readable medium ...--.

2. Claims 27, 29 and 47, are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections.

2.1 With respect to claim 27, claim 27 appears to be independent claim and also appears to be depending from claim 1.

Claim 27 is a method comprising three steps claiming each the method of claim 1, claiming a method over a different method, because claim 1 is a method of determining a time of flight of a signal and claim 27 is a method of monitoring flow through a particle detector; and the Examiner considers that there are not essential structural cooperative relationships of elements

For example claim 27 claims the last element “wherein both  $t_1$  and  $t_2$  are determined in accordance with the method of claim 1, and the Examiner noticed that claim 1 does not determine, either monitor  $t_1$  nor  $t_2$ , as claimed, there are not structural connections between the element of mentioned claim.

The Examiner suggests that, include all the steps of the method of the claim 1, instead “a method as claimed in claim 1” for each of the three elements with this limitation, or include once all the steps for the entire claim 27.

2.2 With respect to claim 29 and 47, the Examiner suggests to see the above observations.

3. With respect to dependent claims, the Examiner considers that, they contain same problem explained above.

***Allowable Subject Matter***

4. **Claims 1-4, 6-10, 12, 14-17 and 21-23** are allowed.

5. The following is an examiner's statement of reasons for allowance:

**Claims 1-4, 6-10, 12 and 21-23**, are allowable because the closest prior art, Schoenfelder et al. [European Patent Application EP 1 006 500 A2 2/12/1999] (hereafter Schoenfelder) and Walters et al. [U.S. Patent No. 5,388,445] (hereafter Walters), either singularly or in combination, fail to anticipate or render obvious a method of determining a time of flight of a signal transmitted between a transmitter and a receiver, said method comprising:

determining a time of reception of the introduced phase shift in the second ultrasonic signal by comparing the waveform of the first received signal to the waveform of the second ultrasonic signals and determining a point of diversion between corresponding characteristic waveform features of the first and second received signals comprising super positioned said first and second received signals; nor

determining a time of flight of the second ultrasonic signal based on the determined time of reception of the introduced phase shift and its time of generation; in combination with all other limitations in the claim(s) as claimed and defined by applicant.

**Claims 14-17**, are allowable because the closest prior art, Schoenfelder Walters, either singularly or in combination, fail to anticipate or render obvious a

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method of determining a time of flight of a signal transmitted between a transmitter and a receiver, said method comprising:

generating at a transducer or the transmitter a first and second ultrasonic signal, where both signals comprise plurality of cycles of a characteristic waveform feature, and the second ultrasonic signal further comprises a waveform modification introduced at a predetermined point in time of the duration of the second ultrasonic signal, and said waveform modification comprises a phase shift in a cycle of the characteristic waveform feature; nor

scanning through said the first received signal and the second received signal in time to determine a point of diversion between the characteristic waveform features of the first received signal and the corresponding characteristic waveform feature of the second received signals, wherein said point of diversion corresponds to a time of reception of the introduced waveform modification at the receiver; in combination with all other limitations in the claim(s) as claimed and defined by applicant.

### ***Response to Arguments***

6. Applicant's arguments with respect to the claims have been fully considered but they are moot in view of the new ground(s) of rejection set forth hereinbefore.

### ***Conclusion***

#### ***Prior Art***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Wiemeyer et al. [U.S. Patent No. 5,926,098] describes an aspirated detector.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Felix Suarez, whose telephone number is (571) 272-2223. The examiner can normally be reached on weekdays from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571) 272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular communications and for After Final communications.

May 16, 2011

/Felix E Suarez/  
Examiner, Art Unit 2857

/Michael P Nghiem/

Primary Examiner, Art Unit 2857